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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/586,370	06/02/2000	John D. Hottovy	33591US1	7083

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EXAMINER
DOROSHENK, ALEXA A

ART UNIT	PAPER NUMBER
1764	

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DATE MAILED: 03/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/586,370	HOTTOVY ET AL.	
	Examiner	Art Unit	
	Alexa A. Doroshenk AAD	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 April 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *24-54* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *24-54* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4-14-03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: The status of the divisional application should be updated in the specification as it is now a U.S. Patent.

Appropriate correction is required.

Information Disclosure Statement

2. References crossed off of the information disclosure statement (IDS) submitted on April 14, 2003 have been considered by the examiner but will not be published on the face of the patent, if a patent is issued.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 43-45 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claimed percentages of appendage inner diameter to the inner diameter of the pipe loop reactor are not found in the originally filed specification or claims.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 50-52 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claims 50-52 recites the limitation "said at least two hollow appendages". There is insufficient antecedent basis for this limitation in the claims as only one hollow appendage has been recited in claim 48.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 24-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Hanson (5,575,979).

With respect to claim 24, Hanson discloses a loop reactor apparatus comprising:

a plurality of vertical, upper horizontal and lower horizontal segments (10);

wherein each vertical segment is connected to horizontal segments by smooth bends (see figure) defining a continuous flow path for slurry (col. 2, lines 1-4);

means for introducing monomer (14), catalyst (20) and diluent (16) into the reactor (10);

means for continuously moving slurry (12) along the flow path (10);

at least one hollow appendage (22) adjacent a downstream end of one lower horizontal section in open communication with said flow path (col. 2, lines 56-58); and

an elongated flash line (24) in communication with the appendage (22) for transferring slurry to a flash means (28) and the line having a heater associated therewith (26).

It is found that the limitation reciting that the appendage being for continuously withdrawing product slurry is an operational condition which is not given weight in an apparatus claim. An apparatus claim covers what a device is, not what a device does. MPEP 2114. In any case, it is held by the examiner that the valve associated with appendage (22) could remain open and therefore operate to continuously withdraw slurry.

With respect to claim 25, it can be seen in figure 1 that the appendage (22) is attached to a lower horizontal segment, oriented along a vertical plane of the segment and adjacent to the smooth lower bend of the segment.

With respect to claim 26, it can be seen in figure 1 that the appendage (22) is attached at an angle from 0 to 90 degrees.

10. Claims 35 and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Ayres et al. (4,613,484).

With respect to claim 35, Ayres et al. disclose a loop reactor apparatus comprising:

a pipe loop reactor (1) for olefin polymerization (col. 8, lines 5-12); and

at least one elongated hollow appendage (12, 14, 15) in communication with the loop reactor (1) for removal of slurry (col. 3, lines 39-43), said appendage having an internal diameter from 1 inch to 8 inches (col. 7, lines 43-49).

With respect to claim 36, Ayers et al. discloses where there can be anywhere from 1 to 8 settling legs (appendages) per reactor (col. 2, lines 25-34).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. Claims 27-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanson (5,575,979) in view of Reynolds et al. (3,565,588).

With respect to claim 27, Hanson does not disclose wherein the appendage is attached to a smooth bend of the reactor.

Reynolds et al. teaches that connecting a nozzle (reads on the appendage/leg of Hanson) to a spherical surface (such as the smooth bend of Hanson) is advantageous in that not much additional reinforcement is required as when attaching to a cylindrical wall (col. 2, lines 32-35). It would have been obvious to one of ordinary skill in the art at the time the invention was made to relocate the appendage of Hanson to a smooth bend in order to gain the advantages in construction as taught by Reynolds et al.

With respect to claim 29, it can be see in figure 1 that the appendage is attached at an angle of between 0 and 90 degrees.

With respect to claims 28 and 30-32, it has been established that locating the appendage to the smooth bend is advantages. It is further held that with such a teaching, one would have a variety of angles and alignments from which to choose to attach the appendage to the bend and one could determine an operable and/or optimal angle and alignment without undo experimentation in view of the teachings. It has also been held that there is no invention in shifting the location of parts if the operation of the device would not thereby be modified. In re Japikse, 86 USPQ 70 (CCPA 1950).

With respect to claim 33, Hanson discloses wherein there is exactly one appendage (22) (see figure 1).

14. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hanson (5,575,979) in view of Reynolds et al. (3,565,588), as applied to claim 31, and further in view of Ayers et al.

The modified apparatus of Hanson does not disclose wherein there is more than one settling leg/appendage (22).

Ayers et al. also teaches a loop polymerization reactor and discloses that providing multiple settling legs per reactor provide improved polymer settling, improved efficiency, increase particulate polymer content in slurry and reduce diluent content (col. 2, lines 16-41). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide multiple settling legs/appendages in the modified apparatus of Hanson in order to gain the advantages taught by Ayers et al.

15. Claims 37-42, 53 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Ayres et al. (4,613,484).

With respect to claims 38 and 40, Ayres et al. discloses the limitations as described with respect to claim 35, above, as well as wherein the internal diameter can vary widely "depending on the loop reactor line diameter, polymer production rates, desire frequency of leg blowdown, capacity of recovery means, and the like" (col. 7, lines 39-43), but does not specifically disclose wherein the appendage has an internal diameter of about 2 to 3 inches.

The specific diameter of the appendage is not considered to confer patentability to the claims. As the reactor production rates and frequency of blowdown are recognized by Ayers et al. as variable(s) that can be modified, among others, by

adjusting the appendage's internal diameter, therefore the diameter of the appendage would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. As such, without a showing of unexpected results, the claimed diameter cannot be considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the diameter of the appendage in order to obtain the desired production rates and frequency of blowdown (In re Boesch, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (In re Aller, 105 USPQ 223).

With respect to the recitation in claims 37, 39, 41 and 42 that the reactor has a capacity of 30,000 gallons or greater, a change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 220 F.2d 459, 105 USPQ 237 (CCPA 1955). Where the only difference between the prior art and the claims is a recitation of relative dimensions of the claimed device, and the device having the claimed dimensions would not perform differently than the prior art device, the claimed device is not patentably distinct from the prior art device, Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984). One would have been motivated to scale-up the reactor since it is well known in the art that a larger reactor can produce more in the same amount of time as a smaller reactor.

With further regard to claim 42, Ayers et al. discloses where there can be anywhere from 1 to 8 settling legs (appendages) per reactor (col. 2, lines 25-34).

With respect to claim 53, Ayres et al. disclose a loop reactor apparatus comprising:

a pipe loop reactor (1) for olefin polymerization (col. 8, lines 5-12);

means for introducing monomer (4), diluent (5) and catalyst (3) into the loop reactor (1) (col. 3, lines 17-23);

a means for continuously moving the slurry along the reactor (col. 8, lines 40-44); and

a means (12, 14, 15) for continuously taking of the fluid slurry from the reactor (col. 3, lines 39-43 and col. 4, lines 30-32).

With regard to the limitation that the reactor has a capacity of 30,000 gallons or greater, a change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 220 F.2d 459, 105 USPQ 237 (CCPA 1955). Where the only difference between the prior art and the claims is a recitation of relative dimensions of the claimed device, and the device having the claimed dimensions would not perform differently than the prior art device, the claimed device is not patentably distinct from the prior art device, Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984). One would have been motivated to scale-up the reactor since it is well known in the art that a larger reactor can produce more in the same amount of time as a smaller reactor.

With respect to claim 54, Ayers et al. discloses wherein means for taking off the slurry are elongated hollow appendages (12, 14, 15) and that there can be anywhere from 1 to 8 settling legs (appendages) per reactor (col. 2, lines 25-34).

16. Claims 46-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ayres et al. (4,613,484) in view of Reynolds et al. (3,565,588).

With respect to claims 46 and 48, Ayres et al. disclose a loop reactor apparatus comprising:

a pipe loop reactor (1) for olefin polymerization (col. 8, lines 5-12); and

at least one elongated hollow appendage (12, 14, 15) in communication with the loop reactor (1) for removal of slurry (col. 3, lines 39-43).

Ayres et al. does not disclose wherein the appendage is in a stratum where the particles are more concentrated (such as the smooth elbow).

Reynolds et al. teaches that connecting a nozzle (reads on the appendage/leg of Ayres et al.) to a spherical surface (such as the smooth elbow of Ayres et al.) is advantageous in that not much additional reinforcement is required as when attaching to a cylindrical wall (col. 2, lines 32-35). It would have been obvious to one of ordinary skill in the art at the time the invention was made to relocate the appendage of Ayres et al. to a smooth elbow in order to gain the advantages in construction as taught by Reynolds et al.

With respect to claim 47, it is held that the elbow, due to its geometry, would have a larger diameter than the straight segments and therefore be a larger diameter segment where the appendage would be attached.

With respect to claims 50-52, Ayers et al. discloses where there can be anywhere from 1 to 8 settling legs (appendages) per reactor (col. 2, lines 25-34). It is held that each leg would have to be at a different orientation in order to successfully attach the legs to the reactor.

With respect to claim 49, Ayres et al. disclose a loop reactor apparatus comprising:

a pipe loop reactor (1) for olefin polymerization (col. 8, lines 5-12);

at least one elongated hollow appendage (12, 14, 15) in communication with the loop reactor (1) for removal of slurry (col. 3, lines 39-43); and

where there can be anywhere from 1 to 8 settling legs (appendages) per reactor (col. 2, lines 25-34) (It is held that each leg would have to be at a different orientation in order to successfully attach the legs to the reactor.).

Ayres et al. does not disclose wherein the appendage is in a stratum where the particles are more concentrated (such as the smooth elbow).

Reynolds et al. teaches that connecting a nozzle (reads on the appendage/leg of Ayres et al.) to a spherical surface (such as the smooth elbow of Ayres et al.) is advantageous in that not much additional reinforcement is required as when attaching to a cylindrical wall (col. 2, lines 32-35). It would have been obvious to one of ordinary skill in the art at the time the invention was made to relocate the appendage of Ayres et al. to a smooth elbow in order to gain the advantages in construction as taught by Reynolds et al.

Conclusion

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexa A. Doroshenk whose telephone number is 571-272-1446. The examiner can normally be reached on Monday - Thursday from 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alexa Doroshenk
Patent Examiner
Art Unit 1764

March 15, 2004